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Contemporary Arts Practice and Outer Space: A Multi-Disciplinary Approach (3)

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SPACE-GROUNDED

Abstract

In a not-so-distant future, astronauts will venture to expand our civilization deeper into the solar system. Beyond the Earth-Moon system, the next palpable destination for human explorers is Mars. A roundtrip deep space mission to our planetary neighbor will take about 1000 days. Living in an isolated habitat for such a prolonged period of time may impact the crew's psychological wellbeing. When the astronauts travel to explore Mars for the first time, we may not foresee all the psychological risks the crew may face. In order to reduce these uncertainties, it may be necessary to develop tools and devices that could enhance the crew's wellbeing, by addressing their higher-level needs beyond basic physiological and psychological needs. In this paper we introduce a portable and personal inhaler device that produces geosmin—a molecule—from dry soil to generate petrichor that could help the crew with combatting depression. Inhaling petrichor could have a therapeutic effect on depression and boost certain chemicals in the brain, similar to serotonin and norepinephrine, thereby functioning as a natural antidepressant. It could even provide the comfort of home by triggering memories associated with Earth, while being far away in space. Hence being space-grounded. We consider this artifact to be a personal item that is created through considerations for human centered design, aesthetics, form and function, materiality, in addition to the therapeutic aspects by boosting certain chemicals in the brain. We discuss our processes of developing the device, including a study of petrichor, address psychological wellbeing, and describe the ideation process, prototyping, and demonstration of the device. We hope that our radical idea will stimulate thoughts and discussions for space habitat designs for the future of deep space exploration, focusing on the personal experiences of the astronauts.